Rhodora

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NEW ENGLAND BOTANICAL CLUB.

Conducted and published for the Club, by

BENJAMIN LINCOLN ROBINSON, Editor-in-chief.

FRANK SHIPLEY COLLINS
MERRITT LYNDON FERNALD
HOLLIS WEBSTER } Associate Editors.

WILLIAM PENN RICH
EDWARD LOTHROP RAND } Publication Committee.

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THE NEW ENGLAND BOTANICAL CLUB

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THE OCCURRENCE OF ELEOCHARIS DIANDRA AT BRUNSWICK, MAINE.

Charles A. Davis.

In the latter part of July and early August, in 1894, the writer was studying the flora of the vicinity of Brunswick, Maine. Nearly ten years before, while he was a student at Bowdoin College the same region had been, as was thought at the time, very thoroughly studied, but the knowledge and experience gained in the intervening time pointed out that many places of interest existed, which not only had not been examined, but had been avoided as barren, by the student.

The richest and most profitable collecting ground found at this time proved to be one of these supposed barren areas, namely the banks of the Androscoggin River, between high and low water marks.

Those familiar with the coastal region of Maine, know that many of the larger rivers are affected by the tides, for long distances from their mouths, the effects being well marked, up as far as the first fall above the mouth of the stream. This effect is of course not peculiar to Maine Rivers, but because of the fiord-like bays into which the rivers empty and the large volumes of fresh water which they discharge, this tidal action in Maine is frequently limited to mere holding back of the outgoing fresh water of the stream, so that twice a day, at high water, the river is broad and deep, and twice a day it becomes shallow and shrinks away from its former limits leaving bare much of its former bed. Since the effect of tidal action is to hold back the fresh water of the stream, we find that in the higher reaches of the tidal action, the water is fresh, and so we have rather broad zones of very wet fresh-water mud- or sand-banks, left along the

shores of the streams. These in their characteristics of soil and drainage are like marshes, but they lack the vegetable debris and stagnation which are found in marshes. They are, in fact, much more like wave-washed beaches in small and shallow lakes in their soil forms, differing from them mainly in the fact that they are less exposed to wind action, and have much more fine material deposited in places where slack water occurs. Small shallow pools are left by the retreat of the tides; mud- and sand-bars are abundant, and those which are exposed longest to the light and air, in summer and autumn, are covered with a rich growth of small plants. These, unless examined carefully, would seem unworthy of attention because of their insignificant size, and also because they are more or less covered by the fine silt brought in by the ever recurring tides. The botanist who is looking for unusual and rare species, will however not leave such areas without careful study, and as the Androscoggin River at Brunswick has all of the features described, many hours were spent in the study of the sand- and mud-bank floras of its shores and many interesting plants were found. Most interesting of all was the finding of the little *Eleocharis diandra* Charles Wright. This plant heretofore has not been reported from east of the Connecticut valley, and yet at Brunswick it was evidently at home in the muddy sand of the high water areas of a small cove in the shore of the river. Near it in a shallow pool, growing with *Juncus filiformis* L. and one or two small species of *Sagittaria*, was *Utricularia minor* L., until then an unnoticed plant in Maine, and two well marked forms of *Isoetes*, probably forms of *I. echinospora* Durien. The *Isoetes* were common even as far out as the borders of the deep channel of the stream. A more complete study of such tracts, and of these same ones at different seasons, would undoubtedly yield a rich harvest of obscure and rare species, for plants of this type of habitat are often very local in distribution but where they do occur they are found in abundance.

UNIVERSITY OF MICHIGAN, ANN ARBOR, MICHIGAN.

THE ELUSIVE CHARACTER OF POGONIA PENDULA. — As supplementary to the article on this somewhat transitory plant in RHODORA, ii, 211, a report from Vermont may be of interest.

Mr. Clifton D. Howe wrote from Burlington on Sept. 12, 1899: "Until three years ago *Pogonia pendula* had not been reported in this

state for fifty years, when it was found in Newfane. Since then it has been reported in several other places, but is still very rare. It was found quite plentiful in Newfane three years ago. Last year there were only a few plants, and this summer I have been unable to find one. I wish you would watch your station and see if you have the same experience with it." The observers at this station were Mr. Howe and Dr. A. J. Grout, whose homes were in that town.

Aug. 16, 1899, the day following that on which Mr. Harvey found it in Maine, the writer found a single plant in a rotten stump in Westminster, about ten miles east of Newfane. On Aug. 24 and on subsequent days, I found it quite abundant in a small wood-lot in Putney, less than a quarter of a mile from the first station. It grew in little hollows, the white, oblong tubers being in rotten wood or decayed leaves. Enough plants were found to have furnished specimens for all the botanists in New England, but of the few saved, most were thrown away, as they did not dry well, and it was planned to make careful collections the next year. Last year, however, and this, vain search has been made for this plant in the hollows where it was so plenty in 1899.

Reports from other stations are desirable. Does it thus disappear wherever found? Has any one ever carefully studied it? It seems to need very careful marking if it appears but once in a generation or two of "mortal men." Let those who find it spread the good news and make the most of their discoveries. It seems to be a case of "now or never." Efforts at artificial propagation might be successful in the hands of those who are skillful in the handling of bulbs. — W. H. Blanchard, Westminster, Vermont.

VOLVARIA VOLVACEA IN LAWRENCE, MASSACHUSETTS.

Francis H. Silsbee.

On August 5, 1901, a friend brought to me some specimens of fungi which were readily identified from the conspicuous volva, pinkish or salmon-colored gills, and absence of collar, as belonging to the genus Volvaria. A visit to the place where they were found revealed a large bed of them. In a dumping ground belonging to the Pacific Mills, Lawrence, a large amount of soiled cop and roving

waste, together with bits of rags and paper, more or less mixed with night soil, occupied a space of about one hundred square feet. The pile was perhaps two feet deep. This heap was almost covered with the fruit, which grew in great luxuriance in clusters of from three to five each, the groups being perhaps a foot or so apart. As they grew on such a loose, soft material it was very easy to secure specimens in all stages of development, from the closed volva up to the fully mature fruit. I did not notice any specimens where the cap was fully expanded so as to be really plane. While still somewhat conical, or broadly umbonate, the pilei would become wrinkled or crépy, and have a wilted appearance. On consulting Stevenson's British Hymenomycetes, I found that the species was undoubtedly *V. volvacea*. His description, which is that of Fries with dimensions added, is as follows: —

"Pileus 7.5 cent. (3 in.) broad, rarely more, cinereous, black-streaked with appressed fibrils, campanulate, then expanded, obtuse. Stem 7.5–12.5 cent. (3–5 in.) long, 12 mm. (½ in.) thick, white, solid, somewhat equal; volva lax. Gills free, flesh-colored. In stoves [hot-houses], roadsides, etc. Rare. July–Aug."

From careful observation of the bed referred to, this description might be amplified thus: —

"Pileus 3–6 in. broad; (very few were less than 3 in. and many were 5 or 6 in.); when first emerging from the volva almost black, and under a lens somewhat fibrillose-tomentose. As the pileus expands it becomes paler, and streaked with black, appressed fibrils, though the disk remains dark. The older pilei become broadly umbonate and striated, and in some cases almost sulcate, especially on the margin. There seemed, also, a general tendency for the pileus, even before expanding, to split at the disc, usually into quite regular quarters, the split often extending partly down the stem. The margin in the expanded caps, also, was frequently split. Stem silky-fibrillose, solid, white without and within, expanded into a bulb at base, and connected with the volva, central but frequently curved, probably owing to the irregular shape of the heap of material. When growing out of the side of a little mound, the stem would curve upward, to bring the pilei horizontal. Gills free, white at first, becoming pink or flesh-colored, and finally almost salmon-colored; rather close, of various lengths. Flesh white, rather thin; taste mild and rather pleasant, although the fruit all had a strong odor. Volva white below,

blackish brown above, rupturing quite regularly along a middle zone the upper half adhering to pileus, but breaking up into two or three large pieces as the cap expands, and soon falling off. The lower part of the volva remains large and loose, with a very free margin, though somewhat appressed. Volva white within.

The growth of these fungi was much affected by weather. After a rain they would develop from the button stage to maturity in about two days. Dry, hot weather with bright sunshine seemed to retard the rapidity and luxuriance of growth, specimens then also being smaller. The bed on which they grew was quite warm slightly below the surface, showing that rapid decay of the mass was taking place.

The spores were smooth, oval, somewhat pointed at one end, and about 8 to 9 × 5 to 6 μ, (6 to 8 × 3½ to 4, Massee). When collected in a mass on paper they were of a rusty salmon color.

At this writing, Aug. 18th, the bed is still bearing.

Lawrence, Mass.

REMARKS ON VOLVARIA.

Hollis Webster.

Mr. Silsbee's observations on *Volvaria volvacea* furnish a peg on which to hang a few notes about the genus, which may be acceptable to readers who have gone no farther in the study of toadstools than to safeguard themselves by learning the characteristics of the poisonous Amanitas. For a Volvaria is much like an Amanita, and would surely be classed as one by a tyro in whose mind the image of the wrapper or volva has temporarily obscured such things as veils and rings, or the color of spores. Indeed the volva is more conspicuous in Volvaria, as a rule, than in any Amanita except *A. caesarea*, in which, as in the larger Volvarias, it consists of a large, fleshy bag that can not possibly escape notice. From the prominence of this wrapper the genus takes its appropriate name. Unlike Amanita, Volvaria has no partial veil, and hence no ring on the stem. In this, Volvaria is like Amanitopsis. But whereas both the ringed Amanita and the ringless Amanitopsis produce white spores, Volvaria spores are pink or flesh-colored. The same tint is usually to be seen in the gills,

if they are not too young. Amanitopsis and Volvaria, then, differ from Amanita in having no partial veil, and from each other in color of gills and spores. As in Amanita, the gills in Volvaria are usually free, and the stem is easily separable from the cap.

Neither in number of species nor in frequency of occurrence does Volvaria equal Amanita. Hennings, in Engler and Prantl (Die Natürlichen Pflanzenfamilien, 1898) gives the number of described species as follows: — Amanita, 56; Amanitopsis, 28; Volvaria, 36. And Lloyd (Volvae of the United States, 1898) mentions, as ascribed to this country, of Amanita, 28 species; of Amanitopsis, 10; and of Volvaria, 12.

With other pink-spored Agarics, the genus Volvaria has been traditionally regarded by mycophagists with suspicion. Recent writers, on the contrary, have placed several species in the list of edible kinds. But opportunities for experiment are so infrequent, or so local, that most mycophagists will probably remain doubters, and prefer to err on the safe side.

Besides the species observed by Mr. Silsbee, two others may be mentioned. The first is perhaps as beautiful and striking an agaric as the woods produce. *Volvaria bombycina*, a species reported from Europe, Asia, North Africa, and North and South America, is the most widely known. It is found on fallen and on living trees, of various species, often in New England on the sugar maple. Though widely distributed, it is nowhere common. It is pure white, covered on the cap with glistening, silk-like fibrils (whence the name), grows to be several inches across, and is sure to attract attention by its size, habitat, and large, baggy volva. On wilting or on being bruised, the pure white becomes stained with dingy brown. Though this Volvaria is well known to be edible, Cooke (British Edible Fungi, 1891, p. 228) says, perhaps over cautiously, it "is often eaten abroad, but we have never been induced to try it. Pink-spored species are, as a rule, suspicious." Though the writer has had repeated opportunities of seeing this species, he has found it only once or twice. It is brought as a great prize nearly every year, in July or August, to some Saturday exhibition of the Boston Mycological Club. And for the last two years a single superb specimen has been brought into Alstead, New Hampshire, to the School of Natural History, from a sugar grove in a neighboring town.

A second large species, *V. speciosa*, known in Europe, America,

and North Africa, is reported by McClatchie as abundant in California, and is said to be edible. It is grayish and very viscid. The same species is called poisonous by Bresadola, in his recent popular account of the edible and poisonous fungi of Middle Europe (Funghi Mangerecci e Velenosi, 1899).

Volvaria volvacea has been reported from a few other places in this country, but never in such abundance as in Lawrence. It is usually much smaller. It grows also in Europe and in Ceylon.

An interesting series of buttons, collected in Mr. Silsbee's locality, was shown to the writer by Mr. G. E. Morris. Even the smallest were very dark colored above — almost black — and with a velvety look. On the older ones, and on the ruptured volva, the color was less intense. There is little doubt that this species is edible, but caution is necessary.

Other species of Volvaria reported from this country are little known. One, *V. Loveiana*, found in Europe and in Canada (by J. Dearness, as reported by Lloyd) has a peculiar habitat — on decaying agarics (Clitocybe) and should accordingly be easily recognizable.

More information as to the occurrence of species of Volvaria in New England would be welcome. They may be easily preserved by drying.

Cambridge, Massachusetts.

MISCELLANEOUS NOTES ON NEW ENGLAND FERNS, — III.

George E. Davenport.

(Presented to N. Eng. Bot. Club, Dec. 2, 1901.)

Note 5. Subdivision of the New England Aspidieae. — In my last notes I explained my reasons for adopting Athyrium for *Asplenium filix-foemina* and now, as I intend adopting some generic changes in Aspidium it seems advisable to explain my reasons for doing so, and to preface my account of a most extraordinary fern by a synopsis of our New England Aspidieae.

The genus Aspidium as recognized by Prof. Daniel Cady Eaton in

his superb work on the Ferns of North America, and, as until recently, generally adopted in the United States, comprises all of the shield ferns with orbicular indusia centrally attached to the receptacle (peltate), and those also with cordate reniform indusia attached at the sinus, without regard to the character of the venation except in so far as it may serve the purposes of sectional relations.

As originally proposed by Olaf Swartz in 1800 or 1801 (Schrader's Journal), and more fully established by him in his Synopsis Filicum later on (1806), the genus consisted of a heterogeneous collection of species having little cohesion from natural affinities, but representing the best arrangement which had been made up to that time.

Subsequent revisions, fortified by the views of such eminent pteridologists as Drs. Presl, Mettenius and Hooker, gradually reduced its proportions to the limitations recognized by Prof. Eaton.

The genus as thus constituted has consisted of three well characterized types, which, while closely related, are readily separable into distinct entities.

The first of these types is represented by *Aspidium trifoliatum* Swartz, which stands as the type of Aspidium proper, and which is a species with orbicular, peltate indusia, and anastomose venation.

The second type is represented by *Aspidium Lonchitis* Swartz, which, while it has peltate indusia, as in Aspidium proper, has its venation wholly free. Not only this but it possesses additional characters of such a nature that many able authorities have treated it as generically distinct in every way from Aspidium. Now it was upon this species that Roth founded his genus *Polystichum* somewhere between 1798 and 1800 (exact date uncertain, but the same as that at which he established Athyrium; see previous note in Rhodora, ii. 267), and *Polystichum Lonchitis* Roth, with its peltate indusia, free venation, and special characters to be described, stands as the type for Roth's genus.

In considering the history of the early genera it appears that nearly, if not all of them consisted of a heterogeneous medley of species which are now seen to have represented different genera, and this justifies adopting the first correctly named species under the genus as the generic type; only such other species as conform to such type characters being accepted as rightfully belonging to the genus.

Following out this principle we find our third type in those members of the Aspidium genera with a cordate reniform indusium

affixed to the receptacle by a well defined sinus. Here we have by far the largest group of Aspidiums and our New England species exactly represent true *Nephrodium* as proposed by Richard in Michaux's Flora Bor.-Am. ii. 1803, the type being *Nephrodium marginale*. It is true that Richard named two other species in their order first, but as both belonged to other genera already established they naturally lapsed in favor of *N. marginale* which thus became the type species. As this species is characterized by having cordate-reniform indusia and *free veins*, it is clear that species with united veins cannot properly be considered as belonging to Richard's genus by anyone attaching importance to the system of venation; yet many authors have persisted in treating Nephrodium as if it had been founded on species with united veins.

The genus, even as here recognized, is made up of two well characterized sections, one consisting of the *marginale* and *spinulosum* group with evergreen, or nearly evergreen fronds, fascicled stout rootstocks forming crowns, and with several roundish fibro-vascular bundles in the stipe; and the other with softly herbaceous fronds, long slender creeping rootstocks, and two flattish bundles in the stipe.

This whole matter is discussed more fully in my Fern MSS. where I have made the characters last mentioned the basis for a divisional arrangement of our New England Ferns.

The following brief synopsis will show the arrangement adopted here for our New England Aspidiums: —

Tribe Aspidieae — J. Smith. *Sporophyte* (plant-body) large, with fascicled rootstocks forming crowns, or creeping rhizomes; fronds variously compounded, evergreen or herbaceous; *sporophylls* (fruit-bearers) with the sori covered by peltate (attached at the centre), or cordate-reniform indusia, the latter being attached at the sinus; venation free or anastomose.

I. Aspidium (from ἀσπίς — meaning buckler or shield) Swartz, as emended. — Sori orbicular, indusium peltate, veins anastomose. Not represented in New England.

II. Polystichum (from πολύς — many, στίχος — order) Roth. — Sori orbicular, indusium peltate, veins free. The members of this genus are further distinguished by the irregular auricled pinnae, coriaceous texture and spiny toothed lobes. The genus is represented in New England by two ferns:

1. *Polystichum acrostichoides* Schott, Christmas Fern, and

2. *Polystichum aculeatum* Roth, var. **Braunii** (Spenner), n. comb. (*Aspidium Braunii* Spenner.) I am not sure that those who maintain specific rank for this fern are not correct, but prefer for the present to adhere to Prof. Eaton's treatment.

III. Nephrodium (from νεφρός — kidney, with reference to the form of the indusium) Richard.[1] — Indusium kidney-shaped, or cordate-reniform with a sinus attachment. The genus is well represented in New England by two distinct sections, as follows: —

Section 1. *Evergreen*, or partially so; the sporophylls generally withering in late autumn; rootstocks caudiciform, forming crowns; fibro-vascular bundles 3 to 7 roundish. The section embraces the following species: —

N. marginale Richard, *N. cristatum* × *marginale* Davenport, *N. cristatum* Richard, *N. Goldieanum* Hooker, *N. Boottii* Davenport acc. to Gilbert, *N. spinulosum* Desvaux, and *N. fragrans* Richardson.

Section 2. *Herbaceous*; fronds withering early, rootstocks rhizomatose, wide creeping; fibro vascular bundles flattish, two in number. Contains the following species: — *N. Thelypteris* Desvaux, *N. Noveboracense* Desvaux, *N. simulatum* Davenport.

A fern now to be described will become a member of the First Section, as will some other forms to be described later on.

In the arrangement which I have here presented, and which it is my intention to adopt in practice, I have not taken into account Bory's *Lastrea*, as being apparently founded on a misapprehension of the true character of Nephrodium it can only properly be regarded as a synonym; neither have I taken into account Adanson's Dryopteris, which the Rochester advocates are striving so hard to establish, because a genus so ill defined, with its type standing for one thing and its description for another, has no just claim for consideration as against the more clearly defined Nephrodium which has been in use for nearly a century.

Note 6. An anomalous Fern. — Late in the autumn of 1894 (Nov. 4) I found growing in one of the woodland swamps in Medford, near plants of *Nephrodium marginale*, *cristatum* × *marginale*, *cristatum*, *Clintonianum* and *spinulosum*, a strange fern which I could not satis-

[1] Richard's name does not appear in Michaux and for that reason some authors cite Michaux as authority for the names used therein, but Richard has been generally recognized as the real author.

factorily determine. The plant stood about two feet high, with the erect fertile fronds standing well above the sterile, and its whole aspect resembling that of an abnormal form of *Clintonianum*.

On examining the rootstock I found it to be sub-erect, with a growth similar to that in *N. marginale*, but sufficiently distinct from that of *N. cristatum* × *marginale* to suggest its being a probable hybrid between *marginale* and *Clintonianum*.

As the particular section of woodland where it grew had been staked out, and the plant appeared to be in danger of an early extermination, I transplanted it to my own grounds where I could watch and study it.

This I have done since, until the plant with a single crown has become a large clump, with a breadth of something like twelve inches and a length of eighteen or twenty; and with sixteen crowns, on one of which last spring I counted 22 crosiers.

Notwithstanding the fact that this extension had occurred by means of lateral growth, the original crown has maintained its sub-erect position, while the later crowns which have developed from lateral offshoots have assumed in one direction more the character of *Clintonianum* with a distinctly lateral or rhizomatose growth, and in the other direction the caudiciform character of the original crown; so that there has existed on the same plant crowns of two types, viz.: that of *N. marginale* and that of *Clintonianum*.

Not only that, but the fronds from the different crowns have shown all manner of variations that might serve as instructive object lessons for some of our industrious species and variety makers.

The behavior of the plant during successive seasons has been noticeable from the fact that some years it would produce a large percentage of perfect fronds, and in others a large proportion of abortive ones, while none have ever reached the original height of the plant.

It has also been noticeable that the position of the sori varied on different fronds from different crowns. Thus on fronds growing on the lateral ends of the clump the sori are medial, as in normal *Clintonianum*, or sub-marginal as would be the case in a hybrid between *marginale* and *Clintonianum*, while on fronds from the original crown, and the later sub-erect crowns, and sometimes on the same frond, a mixture of medial and costal sori occurs, and on those from the latest sub-erect crowns a costal series of sori generally prevails.

The character of the fibro-vascular bundles is the same as in all members of the group to which this plant belongs.

I doubt if it is possible to formulate any absolute rule for determining the different species and varieties of the evergreen shield ferns from the character of the vascular bundles,— certainly not from their number, which is regulated by the size of the frond and the stoutness of the stipe. Thus in large fronds of the different species the number may be seven, and in small fronds five, or even three, at the base of the stipe, with corresponding reductions above.

Our plant is no exception to this rule, but it has shown such remarkable variations from all other forms of the group that it seems worthy of special notice.

Several seasons' observations have left me as much in the dark as to its origin as at first.

That it is a hybrid I believe, but between what ferns it is impossible to say. *Marginale* characters appear in the sub-erect crowns, and in the sometimes nearly marginal elevated coriaceous sori; *Clintonianum* characters in the decumbent lateral crown and medial sori; *Spinulosum* characters in the sometimes deltoid lower pinnae, elongated pinnules, and sharply, almost spinulosely toothed lobes.

As just such another plant may never be found again it does not seem worth while to dignify this one with a name, but in case another should be found the following diagnosis may assist in determining it more clearly.

Mature sporophyte large (12 to 24, or more inches tall), partially evergreen, sterile fronds persistent, sporophylls gradually withering away; rootstock decumbent, fasciculate, original crown sub-erect increasing laterally, at length forming large composite clumps, with sub-erect, decumbent or lateral, crowns all connected by short, stout rhizomes, combining types of *marginale* and *Clintonianum*; crosiers densely clothed with a mixture of large ovate and narrowly lanceolate pale brown scales. Stipes usually 4 to 8 inches long, sometimes longer, and, as well as the primary rachis, stramineous, often darker below, deeply channelled along the face, clothed at the base, and well above, with the ascending scales from the crosiers, and chaffy along the upper rachises. Laminae 12 to 18 inches, or more, in length, 4 to 10 inches broad in the middle, narrowing both ways, often abruptly so at the acuminate apex, which then resembles that of *N. marginale*; once or twice pinnate, or thrice pinnatifid; the middle pinnae

on perfect fronds long lanceolate, acuminate, the lower pinnae shorter often deltoid with acute apices, the upper series narrowing abruptly or gradually to an acute or acuminate apex; superior pinnules generally the longest but the order sometimes reversed; lobes more or less deeply toothed and partially spinulose, texture sub-coriaceous, surfaces smooth; venation, and fibro-vascular bundles as in other members of this group. Sori medial, costal or sub-marginal.

Abnormal fronds defy description, and as it is impossible to get a clear conception of the unique character of this fern from single fronds, a series of the most characteristic will be photographed for distribution.

Medford, Massachusetts.

Rediscovery of Phaseolus perennis in New England. — In preparing his check-list of the Leguminosae of New England, Hon. J. R. Churchill took much pains to investigate the various reports as to the occurrence of *Phaseolus perennis*, Walt., in New England.

He has published the result of his work with some detail in Rhodora, II : 92 — April, 1900. He states that the only known specimens from New England were collected nearly fifty years ago at or near New Haven, Connecticut, and as he could find no specimens collected in more recent years, nor any botanist who had seen it, he would infer that it had disappeared from our flora. It is therefore a pleasure to place this Phaseolus in good standing again among our New England plants, and record for it a present and well established station.

I secured specimens of it at Norwalk, Connecticut, the past summer, in flower on August 23rd, and in good fruit September 16th. This station is about thirty five miles from New Haven, so it can hardly be the one from which the specimens referred to by Judge Churchill were taken. The Norwalk station is in a patch of rocky woodland, and only a few rods from the border of a salt marsh. The growth was strong and healthy, the vines trailing over the ground and forming a thick mat covering about a square rod, to the exclusion of most other plants. — C. H. Bissell, Southington, Connecticut.

Some Plants recently found in and around North Easton, Massachusetts.— *Solanum carolinense*, L. (Horsenettle.) This western species of Solanum was found in a dry location in the town of

North Easton, August, 1899. Two to three hundred specimens were found on the spot. The present year the station was visited and the plant seems to have increased considerably.

Solanum rostratum, Dunal, was found in a cultivated field on the border line between South Easton and Brockton, July, 1900. The specimen located was of enormous size, being $3\frac{1}{2}$–4 feet high.

Ajuga reptans, L. According to Gray's Manual this species is naturalized near Saco, Maine, Montreal, etc. In July of this year a station was found near Elm street, North Easton, in a rather moist meadow. The plants were growing in good clumps, and if the present conditions remain there is hope of a good increase of the specimens. — CARL BLOMBERG, North Easton.

NOTES ON THE BLUE-BERRIED HUCKLEBERRY. — I have read the communications in RHODORA from time to time concerning *Gaylussacia resinosa glaucocarpa* Robinson with much interest. The variety, if it be a variety or rather a distinct species, as it may prove later, is common in eastern Connecticut in the towns of Plainfield, Brooklyn, Canterbury, Voluntown and Sterling. It occurs in distinct clumps generally associated with *G. resinosa* Torr. and Gray. When I was a child I used to pick its berries on account of their larger size, and because of its being different from the common black huckleberry. By some it was considered inferior to the black. I always regarded it as an oddity, and used to hear the older ones speak of it as a cross between the black huckleberry and blueberry. There was probably no foundation for the theory of its being a cross, other than that it was a bluish-black, and that the black huckleberry and blueberry grew near it. It was locally known as the blue-black huckleberry. While it is characteristic of *G. resinosa* and of some species of *Vaccinium*, in many ways, it is, nevertheless, so distinct that it may be readily separated from them in the field by its manner of growth, which is more vigorous than *G. resinosa*, and by its glaucous leaves. — JOHN L. SHELDON, University of Nebraska, Lincoln, Nebraska.

PRELIMINARY LISTS OF NEW ENGLAND PLANTS,—VIII.[1]

Emile F. Williams.

[The + sign indicates that an herbarium specimen has been seen; the sign — that a reliable printed record has been found.]

Lobeliaceae.

	Me.	N. H.	Vt.	Mass.	R. I.	Conn.
Lobelia cardinalis, L.	+	+	+	+	+	+
" Dortmanna, L.	+	+	+	+	+	+
" inflata, L.	+	+	+	+	+	+
" Kalmii, L.	+	+	+	—		+
" spicata, Lam.	+	+	+	+	+	+
" syphilitica, L.	+					+

Campanulaceae.

	Me.	N. H.	Vt.	Mass.	R. I.	Conn.
Campanula aparinoides, Pursh.	+	+	+	+	+	+
" glomerata, L.				+		
" rapunculoides, L.	+	+	+	+	+	+
" rotundifolia, L.	+	+	+	+		+
Jasione montana, L.					+	
Specularia perfoliata, A. DC.	+	+	+	+	+	+

Diapensiaceae.

	Me.	N. H.	Vt.	Mass.	R. I.	Conn.
Diapensia lapponica, L.	+	+	+			

[1]Printed in Rhodora as supplementary material.

Plumbaginaceae.

	Me.	N. H.	Vt.	Mass.	R. I.	Conn.
Statice Limonium, L. var. caroliniana, Gray.	+	+		+	+	+

Primulaceae.

	Me.	N. H.	Vt.	Mass.	R. I.	Conn.
Anagallis arvensis, L.	+	+		+	+	+
Glaux maritima, L.	+	+		+		
Hottonia inflata, Ell.	+			+	+	+
Lysimachia Nummularia, L.	+	+	+	+	+	+
" producta, Fernald	+	+	+	+		+
" punctata, L.	+			+		+
" quadrifolia, L.	+	+	+	+	+	+
" stricta, Ait.	+	+	+	+	+	+
" thyrsiflora, L.	+		+	+	+	+
" vulgaris, L.	+	+		+	+	
Primula farinosa, L.	+					
" mistassinica, Michx.	+		+			
Samolus Valerandi, L. var. americanus, Gray.	+		+	+	+	+
Steironema ciliatum, Raf.	+	+	+	+	+	+
" lanceolatum, Gray.	+		+	+	+	+
Trientalis americana, Pursh.	+	+	+	+	+	+

Ebenaceae.

	Me.	N. H.	Vt.	Mass.	R. I.	Conn.
Diospyros virginiana, L.						+

Oleaceae.

	Me.	N. H.	Vt.	Mass.	R. I.	Conn.
Fraxinus americana, L.	+	+	+	+	+	+
" pennsylvanica, Marshall (*F. pubescens*, Lam).	+	+	+	+	+	+
" pennsylvanica, Marshall, var. lanceolata, Sargent (*F. viridis*, Michx. f.)	+	+	+	+		+
" sambucifolia, Lam.	+	+	+	+	+	+
Ligustrum vulgare, L.	+	—		+	+	+
Syringa vulgaris, L.	+	+	+	+	+	+

Apocynaceae.

	Me.	N. H.	Vt.	Mass.	R. I.	Conn.
Apocynum androsaemifolium, L.	+	+	+	+	+	+
" cannabinum, L.	+	+	+	+	+	+
Vinca minor, L.	+		+			+

Asclepiadaceae.

	Me.	N. H.	Vt.	Mass.	R. I.	Conn.
Acerates viridiflora, Ell.				—		+
Asclepias incarnata, L.	+	+	+	—		+
" " var. pulchra, Pers.	+	+		+	+	+
" obtusifolia, Michx.		+	+	+	+	+
" phytolaccoides, Pursh.	+	+	+	+	+	+
" purpurascens, L.		—		+	+	+
" quadrifolia, L.		+	+	+	+	+
" syriaca, L. (*A. Cornuti*, Decaisne.)	+	+	+	+	+	+
" tuberosa, L.		+	+	+	+	+
" verticillata, L.				+	+	+
Vincetoxicum nigrum, Moench.			+	+	+	

Santalaceae.

	Me.	N. H.	Vt.	Mass.	R. I.	Conn.
Comandra livida, Richardson.	+	+	+			
" umbellata, Nutt.	+	+	+	+	+	+

Orchidaceae.

	Me.	N. H.	Vt.	Mass.	R. I.	Conn.
Aplectrum hiemale, Nutt.		—	+	+		+
Arethusa bulbosa, L.	+	+	+	+	+	+
Calopogon pulchellus, R. Br.	+	+	+	+	+	+
Calypso borealis, Salisb.	+	+	+			
Corallorhiza innata, R. Br.	+	+	+	+		+
" multiflora, Nutt.	+	+	+	+	+	+
" odontorhiza, Nutt.	+	—	+	+	+	+
Cypripedium acaule, Ait.	+	+	+	+	+	+
" arietinum, R. Br.	+	+	+			
" parviflorum, Salisb.	+	—	+	+		+
" pubescens, Willd.	+	+	+	+	+	+
" spectabile, Salisb.	+	—	+	+		+
Goodyera Menziesii, Lindl.	+					
" pubescens, R. Br.	+	+	+	+	+	+
" repens, R. Br. var. ophioides. Fernald.	+	+	+	+		+
" tesselata, Loddiges.	+	+	+	+		+
Habenaria blephariglottis, Torr.	+	+	+	+	+	+
" bracteata, R. Br.	+	+	+	+	+	+
" ciliaris, R. Br.				+	+	+
" dilatata, Gray.	+	+	+	+		+
" fimbriata, R. Br.	+	+	+	+	+	+
" Hookeriana, Gray.	+	+	+	+	+	+
" " var. oblongifolia, Paine.	+	+		+		
" hyperborea, R. Br.	+	+	+	+		+
" lacera, R. Br.	+	+	+	+	+	+
" obtusata, Richardson.	+	+	+	+		
" orbiculata, Torr.	+	+	+	+		+
" psycodes, Gray.	+	+	+	+	+	+
" tridentata, Hook.	+	+	+	+	+	+
" virescens, Spreng.	+	+	+	+	+	+
Liparis liliifolia, Richard.		+	+	+		+

	Me.	N. H.	Vt.	Mass.	R. I.	Conn.
Liparis Loeselii, Richard.	+	+	+		+	+
Listera auriculata, Wiegand.	+	—	+			
" convallarioides, Nutt.	+	+	+			
" cordata, R. Br.	+	+	+	+	+	
Microstylis monophyllos, Lindl.	+	—	+	—		
" ophioglossoides, Nutt.	+	+	+	+	+	+
Orchis rotundifolia, Pursh.	+		+			—
" spectabilis, L.	+	+	+	+	+	+
Pogonia affinis, Austin.				+		+
" ophioglossoides, Nutt.	+	+	+	+	+	+
" pendula, Lindl.	+	+	+	—		+
" verticillata, Nutt.	+	+	+	+	+	+
Spiranthes cernua, Richard.	+	+	+	+	+	+
" gracilis, Bigelow.	+	+	+	+	+	+
" latifolia, Torr.	+	+	+	+		+
" praecox, Watson.				+	+	+
" Romanzoffiana, Cham.	+	+	+			+
" simplex, Gray.				+	+	+
Tipularia discolor, Nutt.				—		

Notes upon the Above Lists. — Old and indefinite reports of plants, which I have been unable to verify by the most diligent inquiry, are purposely omitted. They are as follows:

Asclepias obtusifolia, Michx. — accredited to Maine — Portland Catalogue.

Asclepias quadrifolia, L. — accredited to Maine — Portland Catalogue.

Asclepias tuberosa, L. — accredited to Maine — Portland Catalogue.

Asclepias verticillata, L. — accredited to Maine — Portland Catalogue.

Fraxinus pennsylvanica, Marsh. var. *lanceolata*, Sargent. — accredited to R. I. — Bennett's List (as *F. viridis*).

Campanula rotundifolia, L. var. *arctica*, Lange, to which variety dwarf specimens from the alpine summits of the White Mountains have been referred by some botanists, is not admitted. In my opinion such specimens are but a reduced form of the type, due principally to soil and exposure.

Diospyros virginiana, L., has been accredited to Rhode Island in

some lists. I have omitted it, as I find on examination that the report is based upon a single tree of very doubtful origin, growing on a farm at Cumberland, Rhode Island.

Campanula glomerata, L., is still well established and thriving in the Danvers, Massachusetts, region, where it was reported more than fifty years ago. It seems strange that it has not obtained a foothold in other New England stations.

Jasione montana, L., has overrun Conanicut Island, Rhode Island, and it is likely to spread.

Syringa vulgaris, L., is such a persistent plant that it must be included in a list of plants growing without cultivation. I have seen it in a thriving condition, on old farmhouse sites in New Hampshire and Maine, abandoned fifty to one hundred years ago.

The Apocynums of New England require revision. It has therefore seemed to me best to follow the conservative treatment of Gray's Manual, until the abundant material which has been collected by others and myself can be studied by a competent authority.

Mr. Fernald collected a few years ago on waste land in Cambridge, Massachusetts, a few specimens of *Lobelia syphilitica*, L., one of which is now in the Gray Herbarium. As these plants were doubtless waifs, the species has not been noted in the lists as occurring in Massachusetts.

The record of *Hottonia inflata*, Ell., for Maine rests upon a single specimen collected near Mt. Agamenticus by Mr. John C. Parlin and now preserved in his herbarium. One branch was detached, and it is now in the herbarium of the writer.

The following orchids rest upon old and indefinite or else untrustworthy records. I have been unable to verify their occurrence, notwithstanding an examination of twenty or more of our principal herbaria, and the writing to scores of correspondents:

Aplectrum hiemale, Nutt. — accredited to Maine — Portland Catalogue.

Liparis liliifolia, Richard. — accredited to Maine — Portland Catalogue.

Spiranthes praecox, Watson. — accredited to Maine — Portland Catalogue.

Cypripedium arietinum, R. Br. — accredited to Massachusetts — Amherst List.

Cypripedium arietinum, R. Br. —accredited to Connecticut — Bishop's List.

Cypripedium parviflorum, Salisb.— accredited to Rhode Island — Bennett's List

Goodyera repens, R. Br. var. *ophioides*, Fernald. — accredited to Rhode Island — Bennett's List.

Habenaria ciliaris, R. Br. — accredited to New Hampshire — Baldwin's Orchids of N. E.

Habenaria ciliaris, R. Br. — accredited to Vermont — Baldwin's Orchids of N. E.

(Likewise omitted in Brainerd, Jones & Eggleston's Flora of Vermont.)

Liparis liliifolia, Richards. — accredited to Rhode Island — Bennett's List.

Listera cordata, R. Br. — accredited to Connecticut — Bishop's List.

Orchis rotundifolia, Pursh. — accredited to New Hampshire — Baldwin's Orchids of N. E.

Pogonia pendula, Lindl. — accredited to Rhode Island — Bennett's List.

Tipularia discolor, Nutt. — accredited to Vermont — Baldwin's Orchids of N. E.

(This has been omitted likewise in the Flora of Vermont.)

It seems pertinent to call attention again to the great difference in value between the + sign, indicating that a specimen has been seen, and the — sign, which rests only upon a printed record. Unless this record can be backed up by an herbarium specimen, it can be accepted only with a certain amount of doubt.

Of the most recent segregations accredited to New England not one has been admitted in my list. They are based upon unreliable and inconstant characters. I am well acquainted with all of these variations, and in my opinion they are at best but forms which it is preposterous to erect into species.

Goodyera repens, R. Br., the European type of the species, which was accredited to Vermont in the recently issued Flora of Vermont, has been dropped. The specimens upon which the record was made agree better with the variety *ophioides* of Fernald.

Habenaria Hookeriana, Gray, var. *oblongifolia*, Paine, has been retained, although in the opinion of the writer the variety is not well enough marked, at least in our New England plants, to entitle it to recognition. Equally poor varieties might easily be made out of

mere leaf variations in *Habenaria orbiculata*, *H. obtusata*, *Orchis spectabilis*, etc., etc.

There is a single specimen of *Corallorhiza striata*, Lindl., in the herbarium of the University of Vermont, collected many years ago by Joseph Torrey — date and locality not given, according to ancient usage. The plant, however, is believed to have been collected near Burlington. Prof. L. R. Jones writes me: "We shall have to await its rediscovery before so crediting it in printed lists." I can but acquiesce in this wise suggestion.

Epipactis Helleborine, Crantz, was introduced in 1898, with some garden plants from New York State, at Stockbridge, Mass. It was hardly likely to persist, however, as it selected a hedge along the main street for a habitat.

Spiranthes Romanzoffiana, Cham. is reported to me on good authority as growing on Mt. Greylock, Massachusetts. As there is no published record of the fact, and I am unable to obtain specimens at present, I am obliged to omit it from my list until I can record it without the possibility of a doubt.

Orchis rotundifolia, Pursh, is accredited to Connecticut on the authority of Robbins, who collected it at Norfolk (Bishop's List). This report is very old and it may well be that the plant is now extinct in this town, where it has not been seen for many years.

I have been particularly impressed in the study of this interesting order of plants by the fact that the tenure of life of many of our rarer species of orchids is very insecure. It is evident that many of them such as *Pogonia affinis* and *pendula*, *Tipularia discolor*, *Aplectrum hiemale*, *Calypso borealis*, several Cypripediums, etc., survive in some of the New England States only in the most secluded localities. Even there they are doomed to early extinction in many instances, by the growing demands for timber, by forest fires and by the clearing of the land.

Such plants as Hitchcock, Robbins, Tuckerman, and others reported are seldom or never seen now in their former homes, but must be sought for in the few localities, if there are any, which have not yet been called upon to satisfy the insatiate maw of the pulp mill or to suffer the withering influence of an increasing population.

BOSTON, MASSACHUSETTS.

Vol. 3, No. 36, including pages 285 to 315 and title page of volume, was issued 19 December, 1901.

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Northern Maine or the **MAINE WOODS** begins just north of Bangor, but throughout the region one will find delightful little towns or camps where, if he does not care absolutely to "rough it," he may have comfortable quarters and dry his specimens by the fire.

Almost immediately upon leaving Oldtown, the home of the Penobscot Indians, one feels that he is in the woods, and every minute of the ride will make him impatient to stop the train for the tantalizing plants which flash by in the clearings or by the streams. In fact, the true botanist will inevitably moralize to himself on the desirability of through vestibuled trains and parlor cars, and he may decide to take the freight train at the next station.

If he has spent hours about home searching for something really new to him, he will start with delight as he sees the fields and banks of blue *Aster Lindleyanus* just above Oldtown, or the clearings crimson in September with the drooping tassels of *Polygonum Careyi.* Or, if he is fortunate enough to get off in May, he will be greeted from recent clearings by fragrant white masses of Sweet Coltsfoot, *Petasites.*

Just beyond Alton, he cannot help longing to explore the indefinite miles of Sphagnum swamp, and if he looks to the West, he will see a beautiful little round pond bordered by gnarled Black Spruces, which he instantly knows must be covered with the tiny Mistletoe, *Arceuthobium pusillum.* Alton bog is well worth exploring, but it is only a small area compared with the hundreds of miles of such country through North-central Maine, and unless one has plenty of time he should save that and his enthusiasm for "farthest north."

If one is bound for Moosehead Lake he will follow the Piscataquis River, where, along the banks, or in the neighboring woods and swamps, he will find at different seasons many good things, among them *Anemone riparia*, *Epilobium palustre*, *Erigeron hyssopifolius*, *Antennaria petaloidea*, *Senecio Balsamitae*, *Vaccinium caespitosum*, *Pyrola asarifolia*, *Primula mistassinica*, *Calypso*, *Allium Schoenoprasum*, *Carex deflexa* and *Lycopodium sabinaefolium.*

If he wants the rare **CALAMAGROSTIS NEMORALIS** he should visit the Chocorua-like peak of Boarstone Mt., on Lake Onawa (reached from Monson).

When he reaches Moosehead and Mt. Kineo he will naturally want to

get **CAREX PORTERI**, *C. saxatilis*, var. *miliaris*, and *C. Grahami* from the gravelly shores or low woods; and on Kineo he will look for *Draba incana*, var. *arabisans*, *Primula farinosa*, *Shepherdia canadensis*, *Carex capillaris*, and *Aspidium fragrans*.

In the Katahdin Iron Works region, too, the botanist will be very happy, but the great botanizing begins as he approaches southern Aroostook County. From the main line of the railroad beyond the Katahdin Iron Works district one has some splendid views of Mt. Katahdin itself with the neighboring masses of Sordnahunk and Traveller Mts. If one does not make up his mind at once to explore the giant amphitheatres and castellated ridges of Katahdin, he is no true lover of the best of botanical exploring and of inspiring mountain life. (For detailed account of Katahdin and its flora, as far as known, see RHODORA for June, 1901.)

At Crystal flag-station one should stop long enough to explore a bit of the great bog which furnishes the upper waters of Molunkus Stream. Following the railroad back half a mile he will find himself surrounded by masses of *Betula pumila*, *Lonicera oblongifolia*, and other northern shrubs, with an herbaceous flora including *Parnassia caroliniana*, **DROSERA LINEARIS**, *Valeriana sylvatica*, *Aster junceus*, *Pyrola rotundifolia*, var. *uliginosa*, *Tofieldia glutinosa*, *Carex chordorhiza* and *C. livida*.

If he wishes to stop for some time in the region (and who does not) he can have good accommodations at Island Falls; and there, near the Mattawamkeag River, he will get the local **ANTENNARIA RUPICOLA**, *Hieracium vulgatum*, *Erigeron acris*, and *Halenia deflexa*. In the river, itself, and in Mattawamkeag Lake he will revel in September, dragging up such prizes as *Myriophyllum Farwellii*, *M. alterniflorum*, and *Potamogeton obtusifolius*.

When Houlton is reached one should make up his mind to stop at some of the numerous villages between there and the Aroostook River, for the Cedar (Arbor-vitae) swamps of the Meduxnakeag and the Presque Isle valleys are the homes of *Cypripedium spectabile*, *Microstylis monophyllos*, *Carex vaginata*, and scores of other species of absorbing interest.

The valleys of the Aroostook and the main St. John—for instance at Fort Fairfield, Van Buren, Fort Kent, and St. Francis—furnish one of the most striking floras of New England. There among other species one will get **THALICTRUM CONFINE** and **T. OCCIDENTALE**, **OXYTROPIS CAMPESTRIS**, var. **JOHANNENSIS**, *Hedysarum boreale*, **TANACETUM HURONENSE**, **PRENANTHES RACEMOSA** and **P. MAINENSIS**, *Gentiana Amarella*, var. *acuta*, **PEDICULARIS FURBISHIAE**, **SALIX GLAUCOPHYLLA** and **S. ADENOPHYLLA**, **GOODYERA MENZIESII**, *Juncus alpinus*, var. *insignis* and **J. TENUIS**, var. **WILLIAMSII**, *Triglochin palustre*, *Scirpus Clintonii*, **CAREX CRAWEI** and **C. BICOLOR**, *Equisetum palustre* and *E. variegatum*, and *Lycopodium sitchense*.

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